

Platz für Berechnungen

$$\Rightarrow y' = -20 \cdot \sqrt{5} \cdot y^{-\frac{5}{6}} \quad y(0) = 8$$

$$\int y^{\frac{5}{6}} dy = - \int 20 \sqrt{5} dt$$

$$\frac{6}{11} \cdot y^{\frac{11}{6}} = -20 \cdot \sqrt{5} \cdot t + C$$

$$y^{\frac{11}{6}} = -\frac{11}{6} \cdot 20 \sqrt{5} \cdot t + \bar{C}$$

$$y(t) = \left(-\frac{11}{6} \cdot 20 \sqrt{5} \cdot t + \bar{C} \right)^{\frac{6}{11}}$$

$$y(0) = \left(\bar{C} \right)^{\frac{6}{11}} = 8$$

$$\bar{C} = 8^{\frac{11}{6}}$$

$$y(t) = \left(-\frac{11}{6} \cdot 20 \cdot \sqrt{5} \cdot t + 8^{\frac{11}{6}} \right)^{\frac{6}{11}} \stackrel{!}{=} 0$$

$$\Rightarrow -\frac{11}{6} \cdot 20 \cdot \sqrt{5} \cdot t = -8^{\frac{11}{6}}$$

$$\Rightarrow t = 8^{\frac{11}{6}} \cdot \frac{6}{11} \cdot \frac{1}{20 \cdot \sqrt{5}}$$